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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/688,803	10/17/2003	Lawrence M. Cuprys	0717.2039-001	9675

21005 7590 02/21/2007  
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CONCORD, MA 01742-9133

EXAMINER
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LIANG, REGINA

ART UNIT	PAPER NUMBER
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2629

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/21/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/688,803	CUPRYS, LAWRENCE M.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Regina Liang	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08 December 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-62 is/are pending in the application.
- 4a) Of the above claim(s) 1-15 and 32-46 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 16-31 and 47-62 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### DETAILED ACTION

1. This Office Action is responsive to amendment filed 12/8/06. Claims 1-62 are pending in the application. Claims 1-15, 32-46 are withdrawn from consideration.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

#### *Claim Rejections - 35 USC § 103*

3. Claims 16-23, 47-54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Son et al (US 5,917,459 hereinafter Son) in view of Sakata et al (US 6,945,652 hereinafter Sakata) and Tarsa et al (US 6,350,041 hereinafter Tarsa).

As to claim 16, Fig. 3 of Son discloses a display system comprising a display device (LCD 13), a first light source (11) for emitting light; a first light collection lens system (12) for collecting the light emitted from the first light source and directing the light in a first beam of light to the display device for illuminating the images on the display device for viewing.

Son does not disclose the first light collection lens system comprising a substantially spherical hollow lens, wherein the hollow lens having a substantially spherical interior portion, and the first light source extending within the substantially spherical interior portion.

However, Fig. 9 of Sakata teaches a projection display system using an LED light source (91a, 91b or 91c). Tarsa teaches an LED light source comprising a substantially spherical hollow lens (Fig. 6b) for directing the light pattern that is emitted from the LED light source. Fig. 6b of Tarsa also shows the hollow lens (63) having a substantially spherical interior portion

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and the light source extending within the substantially spherical interior portion. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the display system of Son to have an LED light source as taught by Sakata and to have a substantially spherical hollow lens for directing the light emitted from the LED light source as taught by Tarsa so as to provide solid state devices as a light source which is more robust, last longer and provide a significant cost savings (col. 4, lines 15-22 of Tarsa).

As to claim 17, Son teaches the display device (13) is an LCD.

As to claim 18, Sakata teaches the light source is an LED.

As to claim 19, Fig. 6b of Tarsa shows the hollow lens (63) is substantially spherical with an opening on one side.

As to claim 20, Son as modified by Sakata and Tarsa does not specifically disclose the hollow lens has spherically shaped inner and outer surfaces with centers that can be offset from each other. However, the hollow lens (63) of Tarsa having a thickness between inner and outer surfaces, thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to recognize the hollow lens of Tarsa has spherical shaped inner and outer surfaces with centers that are offset from each other. Thus, Son as modified by Sakata and Tarsa would have the spherical hollow lens as claimed.

As to claim 21, Fig. 3 of Son teaches a projection lens (2) for projecting images from the LCD display.

As to claim 22, Fig. 3 of Son teaches a screen (14) for displaying the images projected by the projection lens (2).

As to claim 23, Fig. 3 of Son teaches the first light collection lens system comprising a condenser lens (12) for condensing the first beam of light.

Claims 47-54, which are method claims corresponding to the above apparatus claims 16-23, are rejected for the same reasons as stated above since such method "steps" are clearly read on by the corresponding "means".

4. Claims 24-31, 55-62 are rejected under 35 U.S.C. 103(a) as being unpatentable over Son, Sakata and Tarsa as applied to claims 23, 54 above, and further in view of Hirata et al (US 6,894,729 hereinafter Hirata).

As to claims 24 and 55, Son as modified by Sakata and Tarsa does not disclose a dispersion lens. However, Hirata teaches a projection type display system comprising dispersion lens (FL2 in Figs. 3 and 4 for example, and see col. 6, lines 32-52) positioned adjacent to the LCD (7) for dispersing the light beam on the LCD (7). Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the display system of Son as modified by Sakata and Tarsa to have a dispersion lens as taught by Hirata "in order to focus images clearly at any part of the screen so as to obtain brighter images" (col. 6, lines 53-55 of Hirata).

As to claims 25, 56, 30, 61, Fig. 9 of Sakata teaches a second LED light source and a third LED light source (91a, 91b, 91c), the light from the first, second and third light sources being different colors, Tarsa teaches the LED light source comprising a hollow lens. Thus, Son as modified by Sakata and Tarsa would have first, second and third light collection lens system comprising hollow lens as claimed. Fig. 9 of Sakata also teaches a condenser lens for

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condensing the first, second and third beam of light, and a beam splitter for directing the first, second and third beam of light to the LCD.

As to claims 26, 57, Fig. 3 of Son teaches a mirror (3) for directing images projected by the projection lens (2) onto the screen (14).

As to claims 27-29, 58-60, Son as modified does not explicitly disclose one of the light sources emits green light at about 530 nm and the other emits red light at about 645nm (claims 27, 58), or a housing of the display system is about 3.5 inches long, 1.5 inches high and 1 inch wide (claims 28, 59), or the screen is about 1 x 1.3 inches and the displayed images have a dimension of at least 3 x 4 inches (claims 29, 60). However, It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the display system of Son as modified to have the limitation as claimed, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

As to claims 31, 62, Sakata teaches the different colors are green, red and blue.

### ***Response to Arguments***

5. Applicant's arguments with respect to claims 16-31, 47-62 have been considered but are moot in view of the new ground(s) of rejection.

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***Conclusion***

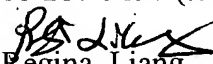
6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Regina Liang whose telephone number is (571) 272-7693. The examiner can normally be reached on Monday-Friday from 8AM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Hjerpe, can be reached on (571) 272-7691. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Regina Liang  
Primary Examiner  
Art Unit 2674

2/12/07